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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,686	02/01/2001	Shigeki Watanabe	837.1960/JDH	3081

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EXAMINER

PHAN, HANH

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 08/05/2004

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/774,686

Applicant(s)

WATANABE, SHIGEKI

Examiner

Hanh Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2001.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3,5-8,10-16,18-20 and 22-32 is/are rejected.
7) ☒ Claim(s) 4,9,17 and 21 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 05/25/2004.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5, 6, 14-16, 18, 19 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mamyshev (US Patent No. 6,141,129) in view of Taneda et al (US Patent No. 6,233,385).

Regarding claims 1, 14 and 26, referring to Figures 1 and 11, Mamyshev discloses a method comprising the steps of:

inputting an optical signal into an optical waveguide structure (i.e., a nonlinear medium NLM 12, Fig. 1) for providing a nonlinear effect;

generating chirp in the optical signal by the nonlinear effect (Fig. 2); and

supplying an output optical signal output from the optical waveguide structure to an optical filter (i.e., optical regenerator bandpass filter 14, Fig. 1) to remove a component in which the chirp is small and large from the output optical signal (see from col. 3, line 35 to col. 7, line 6 and see from col. 8, line 28 to col. 11, line 30).

Mamyshev differs from claims 1, 14 and 26 and in that he does not specifically teach the optical filter having transmission bands at longer and shorter wavelength sides that a center wavelength of the output optical signal output from the optical waveguide structure and the transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from the center wavelength. However, Taneda in US Patent No. 6,233,385 teaches an optical filter having transmission bands at longer and shorter wavelength sides that a center wavelength of the output optical signal output from the optical waveguide structure and the transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from the center wavelength (see Figs. 1 and 2, col. 3, lines 39-67, col. 4, lines 1-67, col. 6, lines 6-9 and lines 44-67, and col. 7, lines 1-24). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical filter having transmission bands at longer and shorter wavelength sides that a center wavelength of the output optical signal output from the optical waveguide structure and the transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from the center wavelength as taught by Taneda in the system of Mamyshev . One of ordinary skill in the art would have been motivated to do this since Taneda suggests in column 3, lines 39-67, col. 4, lines 1-67, col. 6, lines 6-9 and lines 44-67, and col. 7, lines 1-24 that using such the optical filter having transmission bands at longer and shorter wavelength sides that a center wavelength of the output optical signal output from the optical waveguide structure and the transmission bands at longer

and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from the center wavelength has advantage of allowing selecting the wanted signal and eliminating the unwanted signals to improve the signal to noise ratio and reduce the errors and regenerating the optical signal with higher accuracy.

Regarding claims 2 and 15, the combination of Mamyshev and Taneda teaches the optical waveguide structure comprises an optical fiber for providing normal dispersion (col. 6, lines 1-5 of Mamyshev Figs. 1 and 2 of Taneda, col. 3, lines 39-67 and col. 4, lines 1-67).

Regarding claims 3 and 16, the combination of Mamyshev and Taneda comprises an optical bandstop filter having a center wavelength substantially coinciding with the center wavelength of the optical signal (Figs. 1 and 2 of Taneda, col. 3, lines 39-67 and col. 4, lines 1-67).

Regarding claims 5 and 18, the combination of Mamyshev and Taneda teaches further comprising the step of supplying the optical signal to be input into the optical waveguide structure to an optical filter to remove a noise component outside of a signal band in the optical signal (Figs. 1 and 2 of Taneda, col. 3, lines 39-67 and col. 4, lines 1-67).

Regarding claims 6 and 19, Mamyshev teaches further comprising the step of optically amplifying the optical signal to be input into the optical waveguide structure so that a required amount of chirp is obtained (Figs. 1 and 2).

Regarding claim 27, Mamyshev further teaches a second optical fiber transmission line for transmitting the output optical signal (Fig. 11).

Regarding claims 28 and 29, Mamyshev further teaches an optical transmitter connected to an input end of the optical fiber transmission line, and an optical receiver connected to an output end of the second optical fiber transmission line (Fig. 1)

Regarding claim 30, Mamyshev further teaches each of the optical fiber transmission line and the second optical fiber transmission line comprises an optical amplifier repeater transmission line including at least one optical amplifier (Figs. 1-11).

4. Claims 7, 8, 10-13, 20, 22-25, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mamyshev (US Patent No. 6,141,129) in view of Taneda et al (US Patent No. 6,233,385) and further in view of Doran et al (US Patent No. 6,738,542).

Regarding claims 7 and 20, Mamyshev as modified by Taneda teaches all the aspects of the claimed invention except fails to teach a dispersion compensator. However, Doran in US Patent No. 6,738,542 teaches a dispersion compensator (Figs. 8a-8c, col. 5, lines 58-67 and col. 6, lines 1-16). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the dispersion compensator as taught by Doran in the system of Mamyshev modified by Taneda. One of ordinary skill in the art would have been motivated to do this since Doran suggests in column 5, lines 58-67 and col. 6, lines 1-16 that using such the dispersion compensator has advantage of allowing compensating the dispersion of the signal.

Regarding claims 8, 10-13, 22-25, 31 and 32, the combination of Mamyshev, Taneda and Doran teaches the optical waveguide structure comprises a first optical

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fiber for providing normal dispersion; and dispersion compensator comprises a second optical fiber for providing anomalous dispersion; the method further comprising the step of adjusting a dispersion and input power of the second optical fiber so that pulse compression is performed to such an extent that a defect near the pulse peak of an optical signal output from the second optical fiber is reduced (see Fig. 11 of Taneda, Figs. 1 and 2 of Taneda and Figs. 8a-8c of Doran and col. 5, lines 58-67 and col. 6, lines 1-16 of Doran).

Allowable Subject Matter

5. Claims 4, 9, 17 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (703)306-5840.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (703)305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.



Hanh Phan

07/26/2004